What is claimed is:

1   1. A branch prediction apparatus, comprising:

2   a base misprediction history register;

3   a meta predictor to receive an index value and a branch prediction to generate a

4 misprediction value in accordance with said base misprediction history register; and

5   a logic gate to receive said branch prediction and said misprediction value to generate a final

6 prediction.

1   2. The branch prediction apparatus of claim 1, wherein said base misprediction history

2 register includes misprediction history data.

1   3. The branch prediction apparatus of claim 1, further comprising an instruction that

2 provides said index value.

1   4. The branch prediction apparatus of claim 3, wherein said instruction is a branch

2 instruction.

1   5. The branch prediction apparatus of claim 4, wherein said final prediction determines a

2 branch for said branch instruction.

1   6. The branch prediction apparatus of claim 1, further comprising a branch predictor that

2 receives said index value and generates said branch predictor.

1   7. The branch prediction apparatus of claim 6, wherein said branch predictor utilizes a

2 prediction scheme to generate said branch prediction.

1   8.   The branch prediction apparatus of claim 6, wherein said branch predictor includes a

2   target address field and a prediction table.

1   9.   The branch prediction apparatus of claim 1, wherein said base misprediction history

2   register contains values of zero (0), and the misprediction value is not generated by said meta

3   predictor.

1   10. A method for predicting branches, comprising:

2   receiving an index value, a branch prediction value correlating to said index value, and a

3   misprediction history value at a meta predictor; and

4   generating a misprediction value at said meta predictor.

1   11. The method of claim 10, further comprising generating said branch prediction value at

2   a branch predictor.

1   12.   The method of claim 11, further comprising receiving an index value at said branch

2   predictor.

1   13. The method of claim 10, further comprising generating a final prediction according to

2   said branch prediction and said misprediction value.

1   14.   The method of claim 10, further comprising determining a final value, and updating

2   said meta predictor and said base misprediction history register according to said final value.

1   15.   The method of claim 14, wherein said updating includes comparing said final value

2   to said branch prediction.

1   16.   The method of claim 10, further comprising bypassing said meta predictor when said

2   misprediction history value contains all zeros (0).

1   17.   A processor, comprising:

2   a branch predictor to generate a branch prediction;

3   a base misprediction history register;

4   a meta predictor that receives an index value, said branch prediction and base misprediction

5   history register data to generate a misprediction value.

1   18.   The processor of claim 17, further comprising a final prediction to correlate to said

2   misprediction value and said branch prediction value.

1   19.   The processor of claim 17, further comprising a logic gate to generate said final

2   prediction.

1   20.   A computer readable medium having stored a plurality of executable instructions,

2   the plurality of instructions comprising instructions to:

3   receive an index value, a branch prediction value correlating to said index value, and a

4   misprediction history value at a meta predictor; and

5   generate a misprediction value at said meta predictor.

1   21.   The computer readable medium of claim 20, further comprising an instruction to

2   generate said branch prediction value at a branch predictor.

1   22.   The computer readable medium of claim 21, further comprising an instruction to

2   receive an index value at said branch predictor.

1   23.   The computer readable medium of claim 20, further comprising an instruction to
2   generate a final prediction according to said branch prediction and said misprediction value.

1   24.   A method for restoring a branch prediction apparatus following a branch misprediction
2   of a branch instruction, comprising:
3   restoring a base misprediction history register; and
4   restoring a branch predictor history register.

1   25.   The method of claim 24, further comprising updatiing a branch predictor.

1   26.   The method of claim 24, further comprising updating a meta predictor.

1   27.   The method of claim 24, further comprising flushing an instruction pipeline
2   processing said branch instruction.